HK 11 A1

BRIEF DESCRIPTION

OF THE

LIGHT MACHINE GUN

HK 11 A1

General Information

Designation

Light Machine Gun HK 11 A 1, calibre 7.62 mm×51

Applications

The HK 11 A 1 Light Machine Gun can be employed against ground or airborne individual or mass targets. It can be used on a bipod or HK tripod mounts, as well as on all other HK mounts.

General Description

The HK 11 A 1 is a closed-bolt automatic weapon with both single and sustained-fire capabilities.

The machine gun is a recoil operated weapon, incorporating a delayed roller locked bolt system and stationary but exchangeable barrel.

Fig. 1 HK 11 A 1 from the left

Fig. 2 HK 11 A 1 from the right

Assembly Groups (Fig. 3)

1 Receiver
2 Bolt assembly
3 Pistol grip with trigger mechanism
4 Butt stock with locking pins
5 Recoil spring guide rod
6 Barrel assembly
7 Magazine attachment unit
8 Magazine
9 Accessories (bipod and sling)

Fig. 3 Assembly Groups

Description of the Assembly Groups

Group 1: Receiver with Cocking Mechanism and Sights

The front section of the receiver consists of barrel guide and front sight. The top of the front section of the receiver is designed in the form of a cocking lever housing and contains the cocking mechanism (Fig. 4).

On the bottom of the receiver both bipod mount and the tripod attachment are located.

The combat sling holder is located on the left side of the receiver.

The rear section of the receiver is designed to guide the bolt, to receive the magazine attachment unit and to attach both pistol grip and back plate with butt stock. The barrel extension is welded to the receiver.

The cocking mechanism is used for cocking the weapon and for holding the bolt in its rearmost position.

The sighting device consists of the fixed front sight in its holder and the rear drum sight which can be adjusted for windage and elevation.

On the elevation drum are marked the numbers 2 to 12, corresponding to ranges of 200 to 1200 m.

The rear sight is provided with a diopter hole.

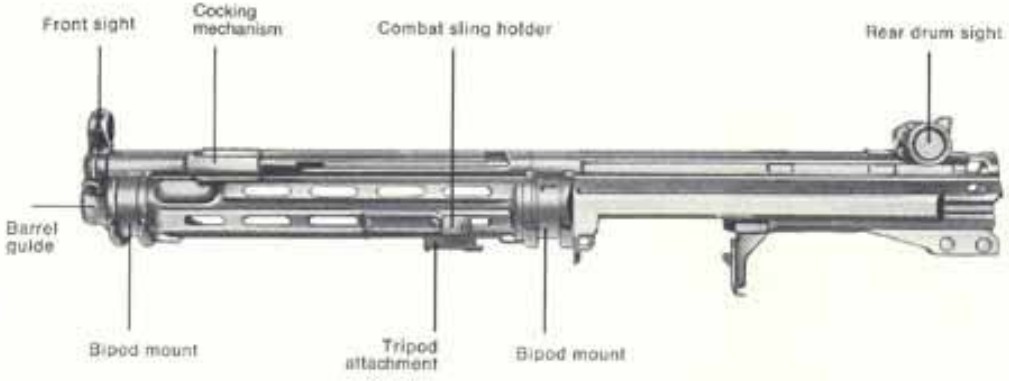


Fig. 4 Receiver with cocking mechanism and sights

Group 2: Bolt Assembly

The bolt assembly (Fig. 5) comprises the following components:

Bolt head carrier with recoil spring tube and bolt head locking lever	(Fig. 6)
Bolt head with locking rollers, Extractor and extractor spring	(Fig. 7)
Locking piece	(Fig. 8)
Firing pin spring	(Fig. 9)
Firing pin	(Fig. 10)

The bolt locks the rear end of the barrel at the moment of firing. During backward and forward motion it is guided by the tracks in the receiver.

During rearward motion of the bolt the extractor holds the cartridge in the bolt head until the ejector is cammed upwards by the bolt head carrier ejecting the cartridge case. At the same time the rear edge of the bolt head carrier cocks the hammer. The floating firing pin, after being struck by the hammer, ignites the cartridge.

A camming groove in the bottom of the bolt head carrier controls the transport motion of the cartridge belt.

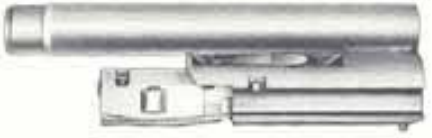


Fig. 5 Bolt assembly

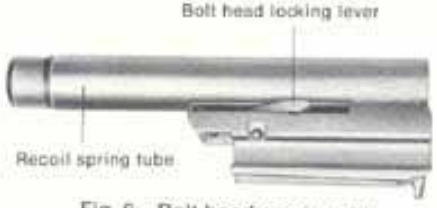


Fig. 6 Bolt head carrier with recoil spring tube and bolt head locking lever

Fig. 7 Bolt head with locking rollers, extractor and extractor spring

Fig. 8 Locking piece

Fig. 9 Firing pin spring

Fig. 10 Firing pin

Group 3: Pistol Grip with Trigger Mechanism

The pistol grip (Fig. 11) is hinged to the receiver from which it can be swivelled down and removed. It contains the trigger housing (Fig. 12) complete with trigger mechanism and safety catch.

The safety axle fixes the trigger housing with trigger mechanism in the pistol grip. On the left side of the pistol grip, the selective fire lever can be set at:

S = Safe (white)
E = Single fire (red)
F = Burst (red)

A white line on the face of the safety axle indicates the position of the selective fire lever also on the right side of the pistol grip.

Fig. 11 Pistol grip with trigger mechanism

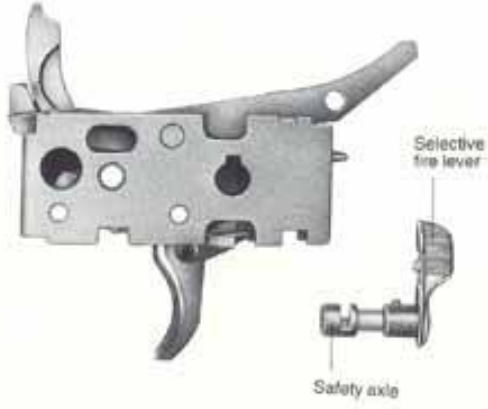


Fig. 12 Trigger housing with trigger mechanism and safety

Group 4: Butt Stock with Locking Pins

The butt stock with back plate (Fig. 13) closes the rear of the receiver. It is connected to the receiver by means of two locking pins. The back plate contains or holds the recoil spring guide rod with recoil spring and the buffer assembly.

Recessed in the left side of the butt stock is a sling holder with two tubular rivets for holding the locking pins while stripping the machine gun. The rear of the butt stock is closed with a butt plate whose two clamp springs engage the tubular rivets, thus securing the butt plate.

Group 5: Recoil Spring Guide Rod

The recoil spring guide rod (Fig. 14) is located in the receiver. The front of the recoil spring guide rod is mounted in the bolt head carrier, with the rear being supported against the back plate.

The guide ring and the recoil spring slide over the recoil spring guide rod and are retained at both ends by the stop pins.

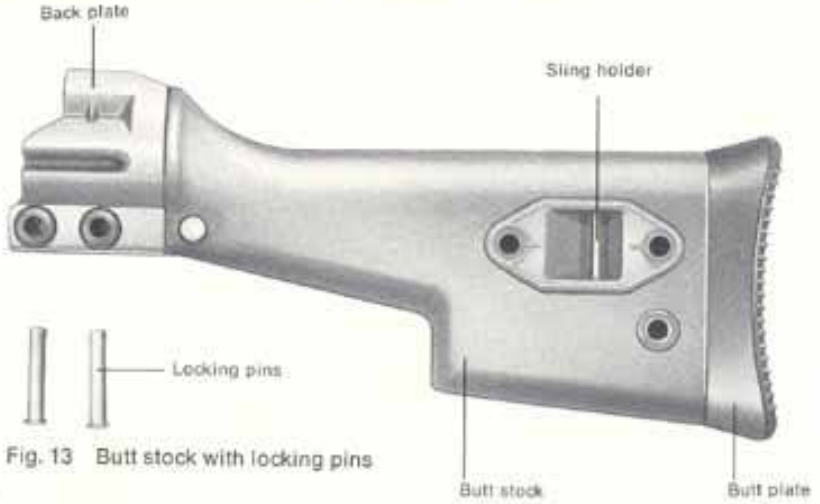


Fig. 13 Butt stock with locking pins

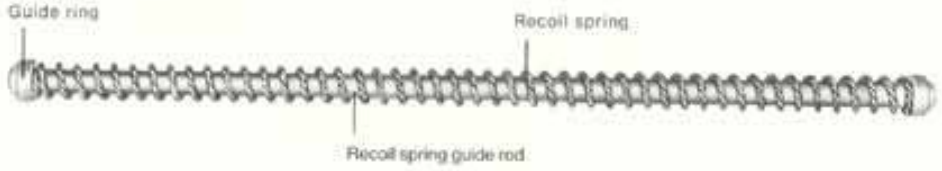


Fig. 14 Recoil spring guide rod

Group 6: Barrel Assembly

The barrel assembly (Fig. 15) consists of the hammer-forged section with chamber, the barrel grip with locking lever and the flash hider.

The barrel grip with locking lever are used for inserting and removing the barrel and locking it in place.

The cams at the rear of the barrel lock the inserted barrel in the barrel extension.

The flash hider is firmly screwed all the way onto the barrel. The retaining spring at the rear of the flash hider engages the barrel shoulder and prevents the flash hider from working loose.

Fig. 15 Barrel assembly

Group 7: Magazine Attachment Unit

The magazine attachment unit (Fig. 16) enables the shooter to use a magazine. It is inserted in the receiver and swivel-mounted in the bipod attachment welded to the receiver by means of a socket pin.

The catch lever engages in an attachment, welded to the receiver and fixes the magazine attachment unit.

Fig. 16 Magazine attachment unit

Group 8: Magazine

The magazine, made of steel, holds 30 cartridges and consists of:

Magazine housing (Fig. 17)

Follower with follower spring (Fig. 18)

Magazine floor plate (Fig. 19)

Fig. 17 Magazine housing

Fig. 19 Magazine floor plate

Fig. 18 Follower with follower spring

Group 9: Accessories (Bipod and Sling)

The bipod (Fig. 20) can be used as a front or centre support for the machine gun. It is attached by inserting the bipod head into the front or centre attachment point on the receiver. The bipod legs can be folded back against the receiver by means of the catch lever.

The sling is used for carrying the machine gun. It is attached to the front of the receiver by means of the carbine hook and to the butt stock by means of the spring hook.

Barrel for automatic firing of blank cartridges

The barrel for firing of blank cartridges (Fig. 21) is a training device for firing cal. 7.62 mm x 51 blank ammunition. This barrel is inserted in the weapon instead of the standard barrel.

To avoid confusion with the standard barrel, the nozzle body is dull chromium-plated. The barrel grip is made of red plastic according to RAL 3000.

The gas pressure can be regulated by adjusting the nozzle bolt.

Bipod Sling

Fig. 20

Fig. 21 Barrel for automatic firing of blank cartridges

Belt feed conversion kit

The belt feed conversion kit (Fig. 22) comprises the belt feed unit, the bolt and the recoil spring. For firing belted ammunition these three parts must be exchanged for the original parts.

The belt feed unit is replaced by the magazine attachment unit and is in the same way swivel-mounted in the bipod attachment welded to the receiver by means of a socket pin.

The catch engages in the receiver and holds the belt feed unit in its operational position.

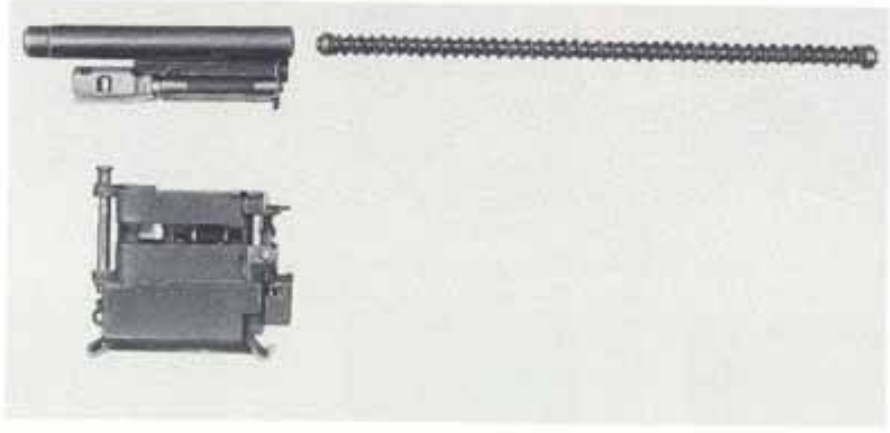


Fig. 22 Belt feed conversion kit

Handling and Operation

Safety features

The selective fire lever is located on the left side of the pistol grip. It can be set for:

"S" = Safe,
"E" = Single fire,
"F" = Burst

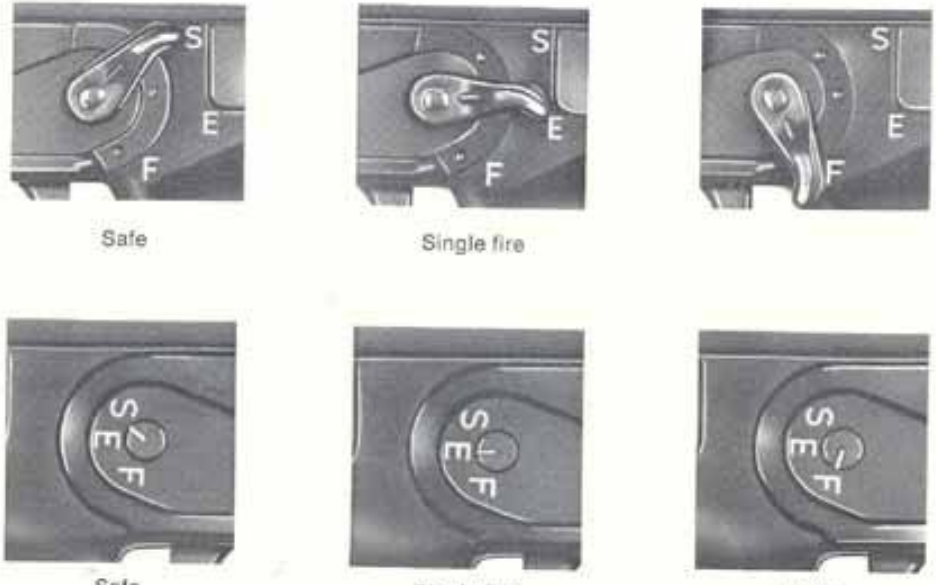
The three letters S, E and F are also marked on the right hand side of the pistol grip, to enable the shooter to identify the position of the safety axle from either side (Fig. 23).

How to put at safe

Set selective fire lever at "S". The trigger mechanism is now blocked. Cocking/loading operations can be carried out while the weapon is in "safe" position.

Firing

Single fire: Set selective fire lever at "E".
Burst: Set selective fire lever at "F".



Safe | Single fire | Safe | Single fire | Burst

Fig. 23

Filling of Magazine (Fig. 24)

One hand holds the magazine, the other hand places the cartridge on the magazine lips and presses the top cartridge with the thumb under the lips.

Emptying of Magazine

One hand holds the magazine. The points of the cartridges point to the front. The second cartridge is pressed down with a small piece of wood or a cartridge, whereby the top cartridge falls out by itself.

Fig. 24 Filling the magazine

Inserting and Removing of Magazine

Set selective fire lever to "S" = safe.

Insert magazine into the magazine well (Fig. 25) until the magazine catch engages audibly.

To remove magazine, push magazine release lever (Fig. 26).

Fig. 25 Inserting the magazine

Fig. 26 Removing the magazine

Loading the Machine Gun

Set selective fire lever to "S" = safe.

Pull back cocking lever with your left hand and engage it in the recess in the cocking lever housing.

Insert filled magazine into the magazine well so that the magazine catch engages audibly.

Let cocking lever snap forward from its rearmost position.

The weapon is loaded with the safety engaged.

Unloading the weapon

Set selective fire lever to "S" = safe.

Press magazine release lever and remove magazine. Retract cocking lever and engage it in the recess of the cocking lever housing. Make sure that the chamber is clear. Release cocking lever.

Disengage the safety and pull the trigger. Engage the safety again.

Changing the Barrel

Set selective fire lever to "S" = Safe.

Pull back cocking lever and engage in the recess in the cocking lever housing. Depress barrel locking lever on the barrel grip. Rotate barrel grip upward and push barrel in the direction of fire.

Swivel barrel out of the receiver to the right and pull to the rear to remove it from the barrel guide (Fig. 27).

Replace the barrel in the reverse sequence.

Fig. 27 Removing of barrel

Changing the Bipod Position

When changing the position of the bipod, leave the bipod legs swivelled down. Depress leaf spring on the lower side of the receiver (Fig. 28) and remove bipod.

When changing the bipod from the front to centre position or vice versa, rotate bipod 180°.

Insert bipod in bipod attachment (only from the right side of the machine gun in the case of the centre position).

For folding up, depress both catch levers on the bipod legs and swivel bipod against receiver.

Fig. 28 Detaching of bipod

Functioning of Parts

The machine gun is loaded and cocked, with the safety off. Pulling the trigger releases the cocked hammer which strikes the firing pin.

The powder gases force the bullet out of the barrel, whilst simultaneously pressing against the cartridge case.

The base of the cartridge case transmits a portion of the gas pressure via bolt head, locking rollers and locking piece to the bolt head carrier, initiating the unlocking and bolt recoil sequence.

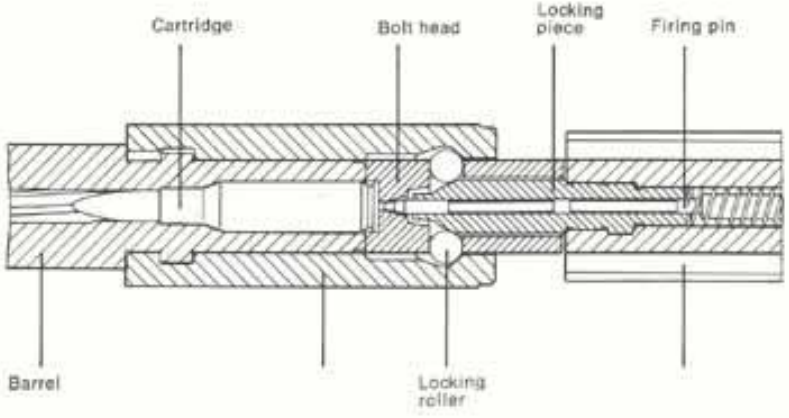


Fig. 29 Bolt locked

When the locking rollers have completely entered the bolt head, the bolt can continue rearward. As the bolt recoils, the hammer is cocked and the empty cartridge case ejected.

The compressed recoil spring drives the bolt forward. The cartridge located in feeding position is forced out of the magazine and into the chamber by the bolt head. The extractor engages the extractor groove.

The locking rollers are cammed against the support surfaces in the barrel extension by the locking piece (Fig. 30) and the MG is ready to fire again.

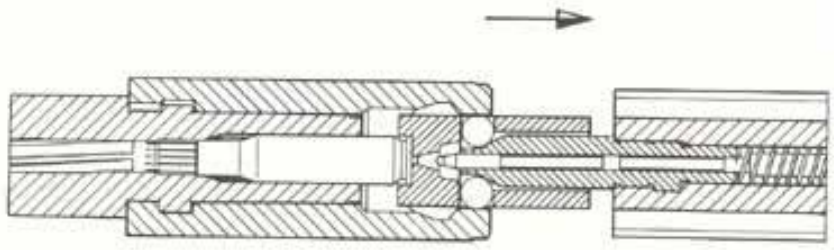


Fig. 30 Bolt unlocked

In semi-automatic operation (Fig. 31) after a round has been fired, the hammer must be released again by the trigger for the next shot.

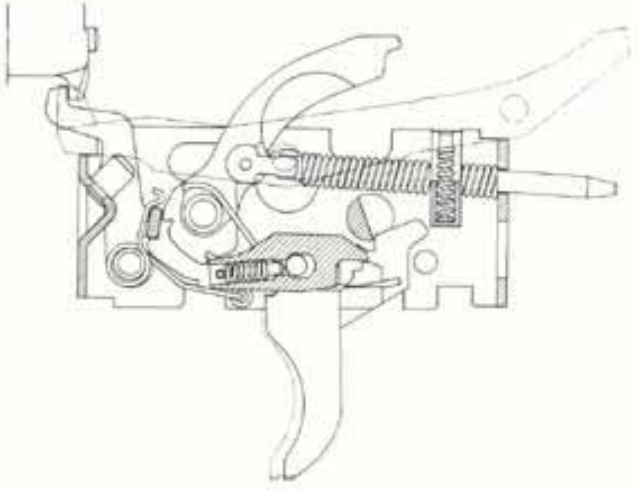


Fig. 31 Semi-automatic fire

As the bolt goes forward during burst fire (Fig. 32) the sear is out of reach of the hammer notch. The cocked hammer is disengaged by the action of the release lever.

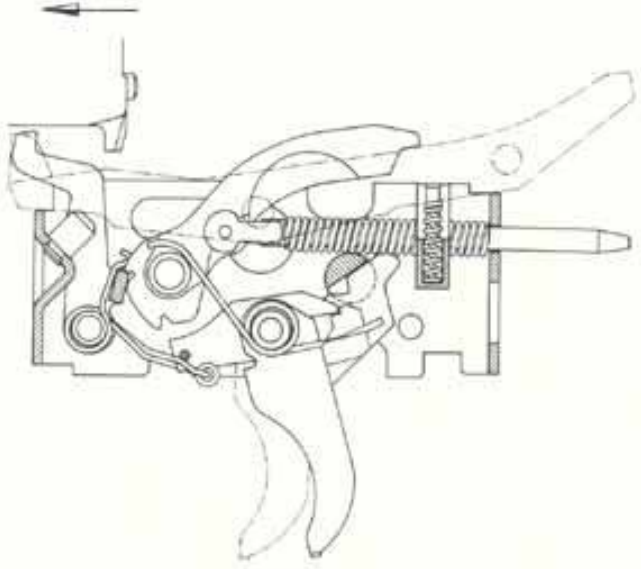


Fig. 32 Burst fire

Disassembling the Light Machine Gun for Cleaning

Put the weapon at safe!

Remove magazine.

Unload and check to make sure that there is no cartridge in the chamber. Move the bolt to its forward position by releasing the cocking lever.

Unsnap sling from eyebolt.

Remove both locking pins from back plate and insert them in the tubular rivets in the butt stock.

Remove butt stock (Fig. 33) and pistol grip.

Pull back cocking lever to remove bolt assembly and recoil spring guide tube (Fig. 34).

Push cocking lever forward again and remove barrel from receiver.

Swivel down magazine attachment unit.

Withdraw socket pin on right side of magazine attachment unit and remove magazine attachment unit (Fig. 35).

Detach bipod.

Fig. 33 Disassembly of back plate and butt stock

Fig. 34 Removal of bolt assembly

Stripping the Bolt Assembly

Grasp bolt head carrier with one hand. Rotate bolt head counter-clockwise with the other hand and remove from locking piece. Remove locking piece, firing pin and firing pin spring from bolt head carrier.

Reassembling the Bolt

Insert locking piece, firing pin and firing pin spring in the bolt head carrier and rotate locking piece until its narrow side is located beneath the locking lever. Push bolt head onto locking piece (Fig. 36) so that its tapered surface is located beneath the locking lever. Rotate bolt head to the right until the first engagement. In this position, push bolt head forward as far as it will go and then rotate the bolt head until its bottom side is even with that of the bolt head carrier.

Fig. 35 Removing magazine attachment unit

Fig. 36 Reassembly of bolt

Disassembly of Pistol Grip

Uncock hammer, rotate selective fire lever upwards and remove both selective fire lever and trigger housing from pistol grip (Fig. 37).

Further stripping may only be performed by ordnance personnel.

Reassembly of pistol grip is done by reversing the disassembly procedure.

Fig. 37 Disassembly of pistol grip

Reassembling the Light Machine Gun (Fig. 38)

Attach bipod to receiver and insert both barrel and bolt assembly with recoil spring guide rod and place in forwardmost position.

Insert magazine attachment unit in the receiver and fix it with the socket pin. Swivel upward magazine attachment unit, until the spring loaded catch engages audibly (Fig. 39).

Attach pistol grip, making sure that the hammer is cocked. Attach butt stock and press in locking pins from the left side. Snap on sling. Check whether the light machine gun is properly reassembled by pulling back and releasing the cocking lever several times.

Prior to shooting make sure that the flash hider is screwed on tightly. Insert magazine.

Malfunction

Basic rule: Put at safe!

Remove magazine, unload light machine gun and determine the cause of malfunction.

Fig. 38 Reassembling the LMG

Employment of the HK 11 A1 as belt fed weapon

Exchange magazine attachment unit, bolt and recoil spring for belt feed conversion kit.

Loading the Machine Gun

Ammunition belt with insertion strap

Loading method 1

Set selective fire lever to "S" = Safe. Pull back cocking lever and engage in the recess in the cocking lever housing. Using the insertion strap, insert belt into the belt feed unit from the left (Fig. 39). Grasp the insertion strap with your hand and pull to the right until the first cartridge is located against the cartridge stop. Release cocking lever. The machine gun is loaded with the safety engaged.

Loading method 2

Set selective fire lever to "S" = Safe. Pull back cocking lever and engage in the recess in the cocking lever housing. Swivel belt unit downward (Fig. 40) by pressing the catch lever. Insert belt so that the first cartridge is located against the cartridge stop. With the belt in place, swivel belt feed unit upward until the catch lever engages. Release cocking lever. The machine gun is loaded with the safety engaged.

Fig. 39 Insertion of belt with insertion strap

Fig. 40 Swivelling out the belt feed unit

Loading method 3

Set selective fire lever to "S" = Safe. Pull back cocking lever and engage in the recess in the cocking lever housing. Swivel belt feed unit downward by pressing the catch lever. Insert belt so that the first cartridge is located against the cartridge stop (41). Swivel cartridge guide downward until it engages the belt feed unit. Swivel belt feed unit and cartridge guide upward again until the catch lever engages (Fig. 42). Release cocking lever. The machine gun is loaded with the safety engaged.

This operation also applies to belts without insertion strap.

Unloading the Machine Gun

Set selective fire lever to "S" = Safe.
Swivel downward belt feed unit and remove belt. Pull back cocking lever and engage in the recess in the cocking lever housing. Check to make sure that the chamber is empty. Release cocking lever and swivel belt feed unit into place. Disengage the safety and pull the trigger. Engage the safety.

Fig. 41 Insert belt

Fig. 42 Swivel belt feed unit and cartridge guide upward

Use of the Belt Box

When using the belt box, attach the closed box to the machine gun.

Insert belt box under the belt feed unit from the left in such a manner that the attachment ribs engage the recesses in the belt feed unit (Fig. 43).

Open the belt box and remove the lead end of the belt.

Detaching the belt box: Unload the machine gun, push locking lever downward and remove belt box (Fig. 44).

Fig. 43 Attaching of belt box

Fig. 44 Push locking lever downward

Adjusting the Rear Drum Sight

Corrections, if indispensable when zeroing, are accomplished by adjusting only the rear drum sight for windage or elevation.

Elevation adjustment

Insert a Phillips screwdriver into the adjusting screw (Fig. 45) and rotate in the appropriate direction.

Rotating the screw to the right will raise the mean point of impact 28 mm per click at a range of 100 m, rotating it to the left will lower the mean point of impact 28 mm per click at a range of 100 m.

Fig. 45 Elevation adjustment

Windage adjustment

Set click drum for a range of 200 m.

Correction of left-hand deviation: Loosen clamping screw (Fig. 46). Rotate adjusting screw (Fig. 47) to the left until the required correction is achieved. Tighten clamping screw again.

Correction of right-hand deviation: Loosen clamping screw (Fig. 40). Rotate adjusting screw (Fig. 47) to the right until the required correction is achieved. Tighten clamping screw again.

Note: Each revolution of the adjusting screw moves the mean point of impact 12.7 cm to the left or right at a range of 100 m.

After performing the windage adjustment, reset the desired elevation.

Fig. 46 Loosening of clamping screw

Fig. 47 Rotating the adjusting screw

Technical Data HK 11 A 1, Calibre 7.62 mm × 51

Calibre	7.62 mm × 51 NATO	(7,62 mm × 51 NATO)
Length of cartridge case	2.05 in	(51 mm)
Length of weapon	40.47 in	(1030 mm)
Length of barrel	17.71 in	(450 mm)
Length of line of sight	23.20 in	(590 mm)
Weight of weapon (with bipod)	16.98 lbs	(7,70 kg)
Weight of barrel	3.75 lbs	(1,70 kg)
Weight of bipod	1.32 lbs	(0,60 kg)
Muzzle velocity -V_0-	2624 f.p.s.	(800 m/s)
Muzzle energy -E_0-	2170 ft. lb.	(300 kpm)
Rate of fire	650 r.p.m.	(650 Schuß/min.)
Sighting device	Diopter Rear Drum Sight 200 m – 1200 m with 100 m increments	

Table of Contents

	Page
General Information	2
Assembly Groups	4
Description of the Assembly Groups	6
Handling and Operation	24
Functioning of Parts	34
Disassembling the Light Machine Gun for Cleaning	40
Reassembling the Light Machine Gun	46
Employment as belt fed weapon	48
Use of the belt box	52
Adjusting the Rear Drum Sight	54
Technical Data	58